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Competency-based computer applications for secondary schools and community colleges

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COMPETENCY-BASED COMPUTER APPLICATIONS FOR SECONDARY SCHOOLS AND COMMUNITY COLLEGES

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ABSTRACT

The purpose of this project was to establish specific guidelines in the application of a competency-based computer software educational program to be implemented in secondary schools and community colleges. Various educational reforms have increased graduation requirements and private industry's demand for highly trained computer literate employees continue to increase.

After defining the actual planning, integration, staff development coordination and implementation twenty students were exposed to computer assisted instruction software. Skinner's theory of reinforcement as it applies to computers and memory enhancement were tested using an accounting tutorial software. The findings substantiate Skinner's theory that computer reinforcement do indeed enhance memorization.

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CHAPTER 1

Introduction

The approach to computer competency-based education is application and curriculum based and the focus is on an effective way of implementing a successful program in secondary schools and community colleges. The purpose of the philosophy and program statement is to share the basis of the program with appropriate academic and community members. Staff training is an integral part of an effective and productive comprehensive development plan. Resource needs are addressed, as the importance of cost cannot be overlooked.

Problem Statement

The purpose of this project was to establish committee responsibilities in providing guidelines in the planning, integration, development, coordination and implementation for computer application in secondary schools and community colleges. The approach to the computer education program is competency-based and focuses also on how the curriculum can be improved using computers.

Statement of the Objective

The proposed outcome of this project is to develop a comprehensive program plan, including a philosophy and mission statement; statements of expected student competencies; intended staff training and development; computer hardware and software requirements.

Purpose of the Project

The specific purpose of this project was to establish definite guidelines in the following areas:

1. Planning
2. Computer Integration
3. Staff Development
4. Coordination and Implementation

CHAPTER II

Review of Literature

The literature review covers research in committee involvement in the planning and implementation in computer application and curriculum development in secondary schools and community colleges. The source for the review was Resources in Education, and material was selected for inclusion based on the following criteria: 1) the study pertains computer application and curriculum, defined to include not only data and word processing but general computer assisted instructional skills as well. 2) the study has secondary and community college significance 3) the methodology is easily interpreted 4) the reports are available and easily interpreted 5) the studies are representative of research in a particular area.

The literature review attempts to identify research trends, major research and development activities recently completed or initiated, and the status of the research projects. Computer technology will continue to have a major impact on the capacity of California's businesses to be competitive in both national and global economics. If

California is to maintain a competitive economy, its workforce must be skilled in the application of computer technology to new and emerging occupational demands.

According to Lancaster (1985) one of the most significant educational developments currently concerns the use of microcomputers for teaching purposes and for school management. Although microcomputers are sill relatively expensive in comparison to other pieces of equipment, they have fallen rapidly in price during the last few years to the extent that it is now meaningful to consider their feasibility in both educational and financial terms.

A review of literature and a well defined project will help ensure that the state's business education students possess the computer skills necessary to gain employment in the rapidly expanding information, communications, and services occupations.

Ogletree & Haskins (1983) availability and quality of software wasconsistently reported as necessary for successful microcomputer use. A study of information/word processing concepts and application was conducted by the Information Processing Task Force at Northern Kentucky

University. The research recommendations suggest a system of consolidated services (Scholes & Chance, 1983).

Comprehensive literature review was conducted in preparation for a project to develop and disseminate a set of standards of excellence common to business education programs and to define instructional standards for excellence common to information processing. A study to ascertain anticipated future development in word processing as well as to provide recommendations for educational institutions that prepare workers for business offices was performed by (Scriven and others, 1981).

Digby (1985) developed a plan to provide relevant instruction to train students who will be able to compete for the computer-related jobs of the future, which require an understanding not only of the curriculum development process, but also of the capabilities of the computer as an instructional device, the different instructional strategies that may be employed, and considerations in selecting hardware and software. The curriculum development framework focused on the following: 1) an educational activity is identified and refined 2) a decision is made to proceed 3) objectives are identified and defined 4) a suitable format

is designed, considering issues related to hardware, software, personnel needs, instructional methods, scheduling, individualized instruction, student/instructor roles. Standards of excellence for computer application and curriculum should cover the following areas: organization, consent, related consent, methods and resources, instructional support systems, and evaluation.

While serving as an IBM Computer Consulting Scholar, Anandam (1989) concludes that over the past two decades we in education have waxed and waned in our excitement about the potential that technology holds for our field. Fortunately, we did not all see the hills and valleys at the same time, which means that our collective enthusiasm at any given point was enough to keep up the momentum for exploring technology's place in teaching and learning.

Skinner's Theory of Reinforcement and CAI

The emerging field of computer science contributed to the advancement and rapid expansion of complicated learning processes in all areas of education. The differences in retention of accounting material with the use of manual and computerized accounting is investigated. A manual and

computerized curriculum is compared to research Skinner's theory of reinforcement. The results indicate that the use of tutorial software offers the student the opportunity to review educational material as many times as is needed for long-term memory storage and comprehension.

Artificial intelligence investigators propose a theory called the cognitive model and devised a computer program to use that model. Then they test it out on the computer and eventually on humans to confirm that the theory is valid. The computer is similar to the brain in limited ways; in many respects it cannot duplicate the functions of the infinitely more complex brain. For educational purposes we can note that the computer and the mind are alike in three essential ways: the capability of processing information with language; memory storage, both short-term (RAM) and long-term (ROM and data-disks); and retrieval of information from both random access memory and key-word associations. The mind can retrieve information randomly stored in the memory by recalling an event or piece of information, and it also remembers by associating events or pieces of information through mnemonic devices.

Nye (1979) stated that the most important of Skinner's behavioral concepts is reinforcement. The term indicates a strengthening effect that occurs when operant behaviors have certain consequences. According to Webster's new Collegiate Dictionary, the definition of the word reinforce is: to strengthen by additional assistance, material, or support; make stronger or more pronounced; to strengthen or increase by fresh additions; to encourage (a response) with a reinforcer.

Though it is common practice to substitute the term "reward" for "reinforcement" the two are not the same. Rewards may or may not strengthen behavior. For example: a teenager may behave contrary to his parents' wishes, despite the fact that they heap rewards (a car, money, freedom, etc.) on him. These parents are giving rewards to their son, but they are not reinforcing his desirable behavior. By Skinner's definition, rein- forcement does strengthen behavior, so if whatever is being done does not have the desired effect, reinforce-ment cannot be said to be occurring. Although, giving so called "rewards" may be reinforcing, the important point is that they do not necessarily strengthen the behaviors they follow.

CHAPTER III

Procedures

Planning

Organizing the stages of the comprehensive planning is often as important as the actual planning itself. This segment will depict the steps that should be completed before the planning takes place Eisele (1987). There are five distinct stages of the detailed organizational program required to produce a comprehensive competency-based computer application program:

1. Forming the planning committee
2. Planning committee directional objectives
3. Orientation seminars
4. Inventory of computer hardware and software
5. Quantity and quality of planning resources

People who are affected by the changes should be involved in the planning process. Involvement is then the most crucial of the preliminary planning activities. Three distinct groups will be affected by the implementation of a computer program: staff members, students, and school board members. Individuals responsible for the implementation process should assure that all three groups are included in

the planning process. Supplemental groups that should be considered are: parents, business and community business leaders.

Involving a computer planning committee will ensure adequate representation and qualified people whose expertise can be utilized in the actual planning stages. The planning committee can be staffed in numerous ways based on the size and organization of the school or college (Lancaster, 1985).

The people responsible for directing the planning could consider the following guidelines when forming the planning committee:

*Include teachers and department administrators from all levels (junior, middle, high school, and community college) regardless of their original participation in the preliminary planning stages.

*Include representatives from a cross-section of subject areas.

*Include students, parents, and business or community representatives on the committee. Solicit participation from student councils, PTA members, and business councils (Chamber of Commerce Members).

*Include computer technology experts represented by a multitude of differing Computer Clubs.

*Organize subcommittees based on specific tasks: preliminary planning; computer integration; staff development, coordination, and implementation; and actual computer application.

In order to represent all areas of the school or college and to make use of personnel resources, the committee should be organized around subcommittees whose leaders would be appointed based upon prior experience in curriculum development and computer technology. The committee chairperson should be in charge of defining the scope of each subcommittee. A temporary schedule of meetings should be arranged.

The size of the subcommittees should be established based on the amount of work that has to be completed. As subcommittee participation is only a small, part-time commitment for most faculty members, assignments should be kept small and manageable. The areas of assignments for these committees should include the use and study of computers by students and teachers in the classroom.

When the planning committee is developed and subcommittees are appointed, the program chairperson should distribute to the members information that outlines specific objectives, tasks to be completed, and the time lines involved in creating an effective computer instructional program. Before the first meeting takes place the steering committee should meet and draft a statement of philosophy.

This statement will establish the direction of the guidelines: the relationship of computer application to existing curriculum; student goals and objectives; guidelines for staff development; priorities of program implementation; and allocation of resources (Computers in Education: Goals and Content (California State Department of Education, 1985).

The finalized statement of philosophy should be reviewed by all committee members. During the course of developing a computer instructional program, presenting the statement of philosophy to the school board should be one of many similar presentations. Periodic presentations to the school board should be a definite part of the ongoing progress because of the significant effect the entire plan is apt to have on the overall curriculum and on the

allocation of staff, time, facilities and money (Levin, H. M., Glass, G. V. & Meister, G. R., 1987).

A statement of philosophy gives the faculty members, parents and members of the community a feeling of what can be masterminded. The development of a philosophy statement demonstrates that the planning committee has a strong feeling of what the future world of work and schooling will be. The philosophy statement forms the foundation for the development of specific program goals and the guidelines for achieving them (Lancaster, 1985).

The planning committee should establish a specific time schedule in conducting seminars for the following three groups: all planning committee members, administrators and teachers, and parents and members of the community. The introductory seminars are not to be confused by the detailed staff development training sessions that will be conducted at a later date. The presentation should concentrate on creating awareness, knowledge, and general understanding of the appropriate steps undertaken in the development of the program plan (Lindquist, 1978). Consider the following guidelines in conducting orientation seminars:

*Give special attention and directives to department supervisors and other key administrators; they are crucial to complete acceptance and involvement of the teachers.

*Allow faculty members the opportunity to conduct the seminars when possible. Staff members have a great deal ofexpertise; using it builds credibility, minimize the resistance to change, and saves money by not having to pay independent educational consultants.

*Develop multiple ways of providing orientation seminars. Use printed materials, videotapes, computer software for individual or small group exercises and hand-on competency-based reviews. (Ainsworth, 1977).

*Postpone orientation seminars for school board members, parents, and community members until all preliminary work is completed.

The following topics should be included in the seminars:

*__Current and future educational applications of technology.__ Demonstrate a variety of applications in instruction, instructional management, and

administration. Address trends in hardware and software development and the computer's effect on the future.

***Courseware and general purpose software.** Demonstrate educational instructional software in a multitude of subject areas and applications. Demonstrate popular software, disk operating system, word processing, spreadsheet, database management (See Appendix).

***Significance of computers and related learning technologies for curriculum, staff development and organization.** Consider the faculty's concerns, (1) displacing some teachers through the use of computers, (2) rewriting the entire curriculum, 3) scheduling, planning and implementing planned objectives, (4) ascertaining that all students have equal access to computers.

***A technical overview of the computer.** Introduce computer peripherals and explain their system operation. Direct a review of applicable hardware and software.

To generate an extensive plan, the committee members should be familiar with the computer applications currently used in the school district and the business world. Descriptions of the hardware and software currently used and the application software available should be assimilated.

The coordinating of the inventory should be the responsibility of the hardware and software committee. The finalized information should be recounted to the planning committee and updated periodically since hardware and software will continue to be purchased until the planning committee has completed its organizational work. Select data obtained from the inventory information should be prepared as a position report and used as a foundation for long-range planning. The finalized report should be forwarded to the school board. Include a letter to explain the importance of the inventory information and how it will be utilized (Wood, 1985).

People are the mainstay of the planning effort; its success is determined by the quantity and quality of resources in use to generate the plan. The required resources include but are not limited to the following four areas (Riely, G.L. & Baldridge, J.V., 1977):

1. Information
   a. Latest trends in technology
   b. Other school and college districts' programs
   c. Materials, programs, and practices available for review.
   d. Latest research findings
2. External experts
   a. Specialized skills and knowledge needed
   b. Sources
   c. Costs
3. Planning Time
   a. Meeting time required
   b. Time required for work sessions (individual and small group) and for preparing reports
4. Materials
   a. Reports
   b. Journals
   c. Special publications

Computer Integration

Curriculum guidelines for the use of computers should be integrated within the existing structures of the school district's present curriculum.

The planning committee should consider the many technical questions when planning for integration of computers into the curriculum. Decisions about the educational arena must be addressed before computer technical questions can be answered. Educational decisions are best proved by an organized method to curriculum design.

The following five areas present an organized method to design curriculum (Eisele, 1987):

1. Goal Statement
2. Competency Statement
3. Planning Guidelines
4. Curriculum Objectives
5. Instructional Design

A comprehensive competency-based curriculum for using computers is based on competencies students are expected to acquire. These competencies should be transposed into definite goals. The following six areas for student goals should be developed: (1) the operation of a computer system;

(2) computer-assisted instruction (CAI); (3) computer applications; (4) problem solving with computers; (5) computer science; and (6) the societal impact of computers.

*Students will be able to have basic awareness of keyboarding skills, computer system elements, process system of the computer, and numerous computer application software.

*Students will be able to use software designed for computer-assisted instruction, such as drill and practice and tutorials, to enhance and reinforce learning.

*Students will gain technical skills and be aware of differing computer hardware and software.

*Students will have a broad knowledge of the impact of computers on society, a history of computer technology, and up-to-date career information.

The term competencies refers to information and attitude as well as specific skills. The competencies should include exactly what computer knowledge the students will need in school and in their careers as well.

Once the curriculum subcommittee develops specific student competencies for each of the goals, the planning committee should establish correct grade level. The planning committee should review existing computer curriculum to determine its suitability within the school district's current curriculum. The subcommittee should request suggestions from teachers and administrators before endorsing the competencies to the planning committee.

A complete curriculum cannot be designed and implemented within the first year. The planning committee should be centered around developing specific student competencies, grade levels, and subject areas. A well established priority-based criterion involving a specific set of goals should be established. Student competencies such as word processing and data processing should be listed in order of importance. A structured approach to planning should allow for a systematic approach to address all areas of student computer competencies.

Student computer competencies should be gradually assimilated into the current curriculum during the development of curriculum planning. Integrating computer competencies into the current curriculum is a major

undertaking. Present curriculum may be adjusted and new ones developed. At this time, the subcommittee should address areas in need of more detailed study or development.

Developing instructional design includes the decision to address student competencies, instructional techniques to be used, materials and equipment needed, and methods of student assessment. Teachers engaged in instructional design should select curriculum and instructional goals after reviewing existing instructional materials and lesson plans. (Anderson and Klassen, 1981).

Staff Development

When guidelines among competencies have been established, the faculty that need immediate training should be identified. Staff development can be assigned to take place over a set period of time geared toward implementation priorities guided by curriculum. Staff development is not only the training sessions but the entire scope unitized to assist faculty members and administrators in acquiring new awareness, viewpoints, and skills. A suggested agenda for the development of staff seminars and training would include but is not limited to:

1. Required faculty competencies
2. Actual faculty competencies
3. Staff development program

Using curriculum objectives and priorities as a guideline, the staff development committee can easily classify faculty competencies needed to design and execute instruction. Under certain conditions, teachers or administrators should have abilities beyond minimum requirements. It would be beneficial if faculty had knowledge of the workings of the networking system used in the computer laboratory and how to use additional programming functions of the computer operating system.

When the faculty and administrators who need training have been selected, the abilities and skills they already have in the identifiable competencies should be recognized. Recognizing these abilities is important because faculty and administrators should not be trained if they have adequate skills, and the faculty and administrators that have advanced mastery should be utilized as team trainers, facilitators, and mentor teachers.

Using assessment material to test competencies is not necessary. The practice of testing can easily be misunderstood as an intimidating factor. A self-assessment form could easily be used. Not only will this format allow the teachers to appraise their own proficiencies and needs, but it will also give them the opportunity to list the specific training they feel is necessary. Specific competencies will be mentioned as part of the assessment form established by the staff development committee.

Administrators play a critical role in supporting the instructional process; their competencies should also be decided. Administrators may not need to have as detailed and extensive knowledge of computers as the faculty who are responsible for instruction, but their understanding of ample curriculum concerns, program organization, and implementation is very important (White, 1987).

Faculty and administrators who need or would like to develop, improve, or master their abilities in each competency should be identified. Furthermore, competency distinguished data should be arranged into ability levels that can be covered in training seminars or in select informational material.

A course syllabus and agenda for the training seminars should be prepared for each level. For each seminar, a training module and lesson plan which will detail the instructional design and materials needed should be formulated.

Training seminars are possibly the best method of furnishing faculty members with new information and mastery. The following guidelines may also prove effective:

* Read for self-instruction
* Pair inexperienced faculty with more experience colleagues.
* Observe model computer application and curriculum in other school districts.
* Direct individual or small group sessions to produce classroom materials and instructional techniques.

Prior studies of the implementation of new programs confirm the importance of extensive and useful staff development. The staff development committee should consider the following recommendations when scheduling actual training seminars:

*Include administrators in staff development seminars. Analysis and prior experience warrant the importance of administrators' interest and leadership in significant educational changes.

1. In-service seminars should prepare the faculty members to perform specific tasks and also provide criteria for determining their extent of success.
2. The seminars should be organized from easy to more difficult tasks that should be mastered.
3. Seminars should be changeable to allow attendees to start at their own level of knowledge and advance at their own pace.
4. Seminars should be offered during school hours.
5. Faculty should have an opportunity to use their newly acquired adeptness in their own classroom settings.

Staff development and curriculum development are continuing projects, each reliant on the other. Even though staff members may need help in obtaining basic computer awareness, succeeding stages of training seminars should center on definite competencies related to curriculum.

Coordination and Implementation

Preferably, one person has been assigned as the coordination and implementation manager responsible for all program management.

The coordination and implementation manager is held responsible for implementing the plan that the committee has developed. In order to execute all the factors into actual operation, the manager should schedule an exact series of detailed activities.

A time schedule is needed. Scheduling patterns can vary from simple to more complex; some management systems require sophisticated computer programs for development and maintenance of effective implementation. Many areas are crucial to successful implementation of computer application and curriculum changes in secondary school and community colleges. When implementing the plan, the manager should do the following:

*Keep faculty members well informed of program activities.

*Schedule meetings when faculty members can solve implementation difficulties and share ideas for solving them.

*Persuade faculty to prepare or adjust instructional materials for their own use.

*Pay close attention to what is taking place in the classrooms. Confirm that actual implementation is going according to plans.

*Record implementation activities. What difficulties were confronted?

The primary reason for evaluating the program's effectiveness is to measure student performance; the faculty's performance should also be measured. The performance to be measured should be stated in the plan and can range from the student's ability to operate the computer to mastery of using specific software.

If computer activities are integrated effectively into the curriculum, assessing changes in the students performance will be very difficult. Most changes in

performance directly related to computer studies are often accomplished with the help of textbook publisher-generated testing software. The number of computers is often smaller than the number of applications; a distribution and scheduling system should be used for each school and college.

Computer locations will affect how students and faculty use them. The existence of a computer lab indicates to the students that the computers are available for self-study. The placement of equipment should match the instructional application. Faculty-directed demonstrations and individualized tutoring may only require one computer in the classroom. Word processing, data processing, and computer-assisted-instruction (CAI) need at least one computer for every two students.

Computer hardware and software are very vulnerable to damage and theft. The materials and equipment support system can ensure that enough hardware and software is available to support the program. The organization and implementation manager should assure that the following tasks are completed:

1. Tag all equipment and put in a secure facility when not in use. A security system should be installed.
2. Insure equipment separately and list all equipment correctly on a master list for insurance purposes.
3. Inventory each piece of equipment and check its location. An identical inventory of software should also be provided.
4. Initiate a maintenance schedule. Maintenance and repair contract are usually available from the computer distributor or repair facilities. Consider hiring a computer technician to take care of minor repair and periodic maintenance.

CHAPTER IV

Products

Computer Software Applications

Computerized Accounting

Computer integration will contribute to the advancement and rapid expansion of learning enhancement of accounting practice, principles, and theory. The retention of computerized learning material is evaluated. Planning is investigated to make a smooth transition from manual to computerized curriculum. Teacher attitude is considered. Without strong instructional support, the plan will not be as effective as it needs to be.

What are the benefits of integrating computers into the existing accounting curricula? Computers will enable the instructor to reinforce difficult material with software that will reiterate difficult theoretical material. Students can work at their own pace by enlisting the tutorial feature of the computerized accounting software.

The importance of computer use cannot be overemphasized. The need for computer integration into existing accounting curriculum is of utmost importance.

Development and implementation of computer integration into the secondary and community colleges can be achieved through a needs analysis.

The first step in planning computer integration into a curriculum is needs assessment within the school district. From the needs assessment, guidelines will be established to proceed through the entire planning process. A planning committee should be responsible for generating an actual plan to integrate compute use into existing curriculum. Questionnaires will be used to gather additional areas of concern to train teachers and administrators in the use of computers.

The process of staff development is crucial to putting the plan into action. Educational innovations have often failed because of lack of adequate training for teachers and staff. Various opportunities should be provided for training, and teachers and staff should be relieved of other administrative duties in order to secure participation. Computer seminars and training sessions conducted by well-trained experts in their field should be offered monthly.

To motivate faculty to attend seminars, a computer should be made available. Ideally, teachers can check out a

computer and take it home where they can comfortably practice and explore its advantages. Using the computer in more familiar surrounding will do a great deal toward relieving the anxiety and stress associated with new technology.

The success or failure of total integration is based on committed and dedicated faculty who are convinced that the implementation of computers will assist in the delivery of current curriculum. Without their commitment, expensive computer equipment will be nothing more than ornaments in classrooms across the district.

Does the planned curriculum account for differences in teacher's background and training, and are they willing to assume the additional responsibility of becoming computer literate? Do computers enhance existing curriculum or will they only amount to additional work for teachers already overloaded with responsibilities? Will incentives be provided for teachers to change their methods of instruction? Are those incentives beneficial? Most importantly, are the leaders in technological innovations recognized and rewarded in order to avoid "burnout" and ensure continued support for the plan?

An important aspect of computer integrated curriculum is to establish specific guidelines and statistical emphasis to evaluate the effectiveness of the program. The learning outcomes are the expected results of a well-designed plan where all the objectives are proving to be of a positive nature. Learning on the computer is like learning any other technology: Its benefits and values need to be evaluated and transferred beyond the technology itself. The product of accounting is comprehension of theory; it is demonstrated in understanding of the material on several levels of meaning. The product of understanding theory is the application of that knowledge into comprehensible financial statements. The computer as a tutorial helps in the process of thoroughly understanding accounting theory and its application; and it can also aid us in attaining superior product. The use of quality software programs enhances comprehension with problem-solving and decision making; financial statements will be prepared in a professional manner according to Generally Accepted Accounting Standards. Finally, an overall testing method should be developed to secure specific objective measurements, which will depictthe positive outcome gained

by implementing computers into the secondary and community college business education accounting curriculum.

Computer based accounting will assist the student in comprehension of theory and specific application of that theory. According to the specified curriculum, the students, through detailed instruction, will have a thorough understanding of computer assisted instruction. Each accounting unit will be reinforced through the use of supplemental computer assisted examples. With the assistance of computer tutorial accounting software, the student will be able to individually reinforce difficult-to-understand concepts.

Integrating computers into the accounting curriculum is an effective way of assuring thorough comprehension of principles, theory, and implementation of accounting into business financial statements. Computer assisted material gives the students a feeling of being in control of difficult-to-understand material, which can be viewed with the aid of tutorial software. In the final analysis, to integrate computers on the secondary and community college levels, the teachers have to be enthusiastically involved in all the developing and implementing steps.

SYLLABUS

COURSE: Computerized Accounting

GRADE LEVEL: Secondary and Community Colleges

RATIONALE: To build upon previously learned manual accounting and apply that knowledge to a computerized business simulation, using pre-programmed software and IBM personal computers.

OBJECTIVES:

1. To become familiar with the use of computers and the speed at which they operate in the application of a totally integrated accounting system.

2. To present and integrate accounting principles in such a way that little knowledge of computers or computerized accounting is required.

3. To provide a hands-on approach to master integrated accounting.

PROCEDURES:

The entire process is built upon a step-by-step process; one module needs to be completed prior to starting the next unit.

EVALUATION:

1. Complete each chapter and produce a hard copy of all appropriate reports.

2. Complete end-of-chapter tests.

3. Complete end-of-chapter audit tests.

Attendance and participation	1/4 of the grade
Printed reports	1/4 of the grade
Chapter tests	1/4 of the grade
Audit tests	1/4 of the grade

CHAPTER V.

Findings

Computency-Based Computer Applications

What are the benefits of integrating computers into the existing manual accounting financial system? You can not always be sure what will be reinforced. Differences sometimes exist from person to person, from behavior to behavior, and from situation to situation. You can only be sure that reinforcement was used when the relevant behavior is being strengthened; in order words, the effects must be observed to determine whether or not reinforcement is occurring.

The following study provided the model to decide whether or not Skinner's theory of reinforcement would prove to be effective; thirty subjects were tested.

Integrated accounting software was introduced to reinforce previously taught manual accounting theory. The importance of having adequate accounting knowledge as it applies to the ever increasing complexities of today's financial information world should be reinforced. Do only business students need to know how to apply accounting concepts to business transactions? Or, should

all students have a working knowledge of the basis for presenting a business financial status report, according to Generally Accepted Accounting Procedures (GAP)?

How should be basis of accounting be introduced, and what are the benefits of using a computer? The theory of accounting concepts are built one upon another with the basics introduced first, much like beginning mathematics are the stepping stones for further study within the computational skills area. Key concepts have to be clearly and specifically enforced. The accounting equation applicable to the balance sheet and income statement shows those concepts apply to the overall accounting cycle.

A microcomputer with appropriate software was used to assure mastery by taking advantage of additional end-of-chapter problems. This approach reinforced the importance of a firm accounting foundation prior to more advanced study. Computerized integrated accounting software was used after each new concept to reinforce long-term application and comprehension of the accounting equation and its use in producing financial information system statements. The benefit of the software's diagnostic/ tutorial feature is that it will instruct the student if the correct debit

credit transaction entries is made; if an explanation was needed it is made available through a tutorial help menu.

Student comprehension of material and advancement to the next level of difficulty was accomplished through the use of a non-graded print-out of each chapter. This print-out was reviewed prior to advancement on to the next level of the accounting financial cycle. The introduction to accounting as it applies to proprietorship culminates in a business simulation which covers all concepts of the accounting cycle, using integrated accounting software.

Based on earlier exposure to computer based accounting through the use of exercises after each chapter, the students were familiar with the skills process needed to assure a successful computer conversion. The students use the same software for end-of-chapter review problems and were given the opportunity to computerize all accounting problems throughout the textbook. The familiarity with the software will provide an on-going reinforcement model and eliminated any computer phobia the students may exhibit. The final accounting project introduced a corporate structured business. Based upon previously learned theory and practice, the students were required to do an entire

accounting computer conversion. At that time, each student, through multiple reinforcement models, was very comfortable with the use of accounting and its integration into computers.

Competency-based computerized accounting is an effective way of reinforcing theoretical accounting concepts. Students look forward to working with computers, and they are pleasantly surprised at the speed with which a computer processes numerical data. It takes a student ninety hours to complete an entire accounting cycle manually and it takes only fifteen hours to do the entire accounting cycle using a microcomputer. In the final analysis it was substantiated that all the students did benefit by the use of an integrated accounting model.

CHAPTER VI

Conclusions

The potential benefits of using microcomputers in the educational process was well established. By following the committee's suggestions for implementing competency-based computer applications, secondary schools and community colleges experienced small difficulties in implementation. Specific guidelines and responsibilities were well defined throughout this paper. Practical computer applications in an actual school settings has been tried and proven successful.

Reasons for computer-based information systems which have not been successful suggests that problems commonly arise from the absence or inadequacy of feasibility studies and/or from a concentration on the technical aspects of the innovation rather than being given to the planning, integration, staff development, coordination and implementation. There is, however, a concern that the momentum of the computer explosion has resulted in decisions having been taken quickly and on the basis of insufficient thought and that development might have been more beneficial if some of the issues addressed had been considered more

thoroughly. This writer feels this can be prevented by granting a committee the responsibility of developing guidelines for computer application in secondary schools and community colleges.

CHAPTER VII

Recommendations

It is recommended that the use of microcomputers be implemented in the educational process. It is also urged that Secondary Schools and Community Colleges follow committee guidelines for the implementation of a competency-based computer application curriculum. The use of hands-on practical computer applications is a necessary part of a successful program.

The adherence to specific directional guidelines and responsibilities developed by the committee in the planning, integration, staff development, coordination and implementation stages of computer applications in secondary schools and community colleges can not be overemphasized. Assertain that more thought is given to the adequacy of staff development and training as this becomes an integral part of the programs success.

It is recommended that further studies should be made to research current models in the area of competency-based computer applications educational programs.

CHAPTER VIII

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APPENDIX A

INTRODUCTION TO DISK OPERATING SYSTEMS USING MS-DOS

LEARNING OBJECTIVES:

At the completion of this assignment, you will be able to:

I. What is DOS?

II. Use start-up loading procedure

III. Internal Processing Functions

IV. Internal Disk Handling Commands

V. Use Filenames and Extensions

VI. Create Directories/Subdirectories

I. What is DOS?

DOS is an abbreviation for Disk Operating System. Every computer require an operating system, regardless of whether it is a mainframe or microcomputer. The micro-computer core system is disk based (either floppy or fixed) and it is thereby called disk operating system. An operating system will assist the computer in managing files. DOS will save and locate files among other managerial tasks.

MS DOS (MS is a trademark of MicroSoft Corp.) is also capable of working with many application software packages that are compatible with MSDOS. The three (3) types of Application Software are:

1. Word Processing Software - Controls the processing of words. For example: Letters, reports, manuscripts.
2. Data Processing Software - controls the processing of numerical values. For example: Accounting reports such as income statements and balance sheets.
3. Data Base Software - Controls the manipulation of words and numerical information through a sorting process.

II. Use start-up loading procedure

A. How to (start up) a computer from:

*A two-floppy-disk-drive system:

1. Insert DOS disk in Drive A.
2. Close the A disk drive door.
3. Turn on the computer and monitor.

*A hard-drive system:

1. Leave the A disk drive door open.
2. Turn on the computer and monitor.

B. Date and Time Prompts:

1. The data prompt will look similar to:

   Current date is Fri 8-02-91

   Enter new date (mm-dd-yy)

2. The time prompt will look similar to:

   Current time is 10:23:47

   Enter new time (hh:mm:sec)

III. Internal Processing Functions

These are functions which MSDOS performs internally-no user action needed:

A. Input - keyboarding information

B. Storage-save a created file

C. Retrieval - recalling information information for revision

D. Output - printing hard copy

IV. Disk Handling Commands

A. Internal Commands

*DIR - List all files on the disk

*COPY - Copy single or batch file

DIR - list all files on disk

1. At the DOS prompt, type DIR

2 Press ENTER

COPY - Copy single or batch files

1. Copy files from the A drive to the B drive

A:> COPY DOSNOTES.DOC B:

2. Copy to the Default drive - From B to A

A:> COPY B:NOTECOPY A:

3. Copy a file to the same diskette

A:> DOSNOTES.DOC DOSNOTES.BAK

COPY USING GLOBAL FILENAME CHARACTERS (WILDCARDS)

4. Copy all the files with the same extension

   A:> COPY *.COM B:

5. Copy all files from one disk to another

   A:> COPY *.* B:

B. External Commands

*FORMAT - Prepares new diskettes for use

*DISKCOPY - copies an entire disk (backups)

FORMAT

WARNING! This is a dangerous command, since it erases your entire diskette. Please follow these instructions carefully.

1. At the DOS prompt, type **FORMAT**
2. Press **SPACEBAR ONCE**
3. Specify drive A: or drive B:

Never leave out the diskette drive letter, and never specify the hard disk (usually drive C or D).

DISKCOPY

1. At the DOS prompt type **DISKCOPY**
2. Press **SPACEBAR ONCE**
3. Type **A:** (A drive)
4. Press **SPACEBAR ONCE**
5. Type **B:** B drive)
6. Press **ENTER**
7. Insert the original (source) diskette in drive A:

   Insert diskette to receive copy (the target) in drive B:.

   Close both drive doors:

V. Use Filenames and Extensions

Filenames

Regardless of the kind of data in the file, a filename must be assigned to every data file, as well as to every program file. A FILENAME consists of one to eight characters. A combination of characters can be used EXCEPT: period (.), quotation mark ("), slash (/), backslash (\), brackets ([]), colon (:), less than (<), greater than (>), plus (+), equals (=), semicolon (;), and comma (,).

Filename Extensions

A filename extension consist of a period (.) followed by one to three characters. For example, a word processing document could be followed by the extension .wp, data processing .dp, and data base management .db. If a copy of a file is created, use the file name .cpy, to identify the file as a copied file.

VI. Create Directories/Subdirectories

To view files on any disk, the computer reads the entire disk looking for the file. A file directory or listing is searched. The directory created when the diskette is formatted is called the root directory. Entries for subdirectories are made in the root directory. The reason for creating a SUBDIRECTORY is to keep a similar group of files together.

STANDARD DOS PROMPT: C>

ROOT DIRECTORY PROMPT: C>:

A. Making subdirectories

If the directory is to be on drive C

C:>MD WP (WordPerfect directory)

B. Changing Directories

C:>CD\WP

C. Removing subdirectories

1. Enter the WordPerfect subdirectory by typing the command: **CD\WP** - ENTER
2. Empty the subdirectory of WordPerfect by typing **ERASE *.***, press ENTER.
3. A message will show on the screen, "Are you sure (Y/N)? Press **[Y]**
4. Return to the root directory by typing the command **CD**, press ENTER
5. At the root directory type **RD WP** (remove directory, WordPerfect)

APPENDIX B

INTRODUCTION TO WORD PROCESSING

USING WORDPERFECT

LEARNING OBJECTIVES:

At the completion of this assignment, you will be able to:

1. Use Start-up loading procedure
II. Create a document
III. Change the format of a document
IV. Define the text
V. Spell check a document
VI. Use the Thesaurus
VII. Print a document
VIII. Save a document

I. Use start-up loading procedure

*Generally, to begin WordPerfect, at the DOS prompt type: WP (the complete filename is WP.EXE).

*The way to load WordPerfect may differ from computer system to computer system. There are loading procedures for a hard-drive system and a two-floppy disk-drive computer system. Become familiar with and master the appropriate loading procedure for your computer system.

A. The blank screen that appear after WordPerfect has been accessed is comparable to a standard size sheet of paper (8 1/2" x 11"), available for you to begin to type.

B. The blinking dash at the top of the screen is the **CURSOR.** The cursor is your visual display of where you are on the input screen.

C. The **STATUS LINE** at the bottom of the screen will furnish information about the current document. It displays the page number, the line number, and position of your cursor.

D. Defaults

*WordPerfect 5.0 has default (pre-set) for the following margins, font size, hyphenation, and amount of lines per standard size page:

1. Margins	Left = 1", Right = 1"
2. Spacing	Single
3. Tabs	Every 5 spaces
4. Pitch	10
5. Hyphenation	Off
6. Lines per page	54 text lines

II. Create a Document:

***Create a Stafford Student Loan Letter**

Type the letter on the following page as is.Press the [Return/Enter] key when you see the Return/Enter symbol <-¦. You do not have to press Return/Enter at the end of each line. WordPerfect has an automatic wrap-around feature. If you press Return in error, use the <- [Backspace Key] to return to the proper position. If you make any typing errors, do not correct them at this time. Typing errors will be corrected using the built-in spell-checker.

June 30, 1991
<-¦
<-¦
<-¦
<-¦
Mr. Robert Jones
P.O. Box 9786
Riverside, CA 92506
<-¦
<-¦
Dear Mr. Jones:
<-¦
<-¦
We are happy to inform you that your Stafford Student Loan application has been approved for $4,000 for the school period of 9/01/91 to 06/15/91.<-¦
<-¦
According to Federal regulations, your loan, less the required fees may be made in multiple payments. Based on the dates supplied by your school and provided that you maintain eligebility requirements, the loan checks will be mailed directly to your school as follows:<-¦
<-¦
1ST CHECK 1,900.00 - 09/01/91<-¦
<-¦
2ND CHECK 1,900.00 - 01/15/91<-¦
<-¦
Please wait for your school to notify you when your loan proceeds are available. For all students attending foriegn schools, the disbursement check will be mailed directly to you.<-¦
<-¦
Sincerely,<-¦
<-¦
<-¦
<-¦
Matthew Skakowski<-¦
Manager<-¦
Citibank Student Loan Business<-¦

III. Change the Format of a Document

As displayed on page 52 WordPerfect has defaults (pre-set) format features. To change the default settings, move the cursor to the top of the document (format changes will only affect the text to the right and below the cursor).

A. JUSTIFICATION ON/OFF

1. Place cursor at location for justification change.
2. Press **[Shift + F8]** (Format Menu)
3. Select **[L]** (Line)
4. Select **[J]** (Justification)
5. Select justification setting
   a. Select **[Y]** (yes)

      or

   b. Select **[N]** (no)
6. Press **[F7]** (return to document)

B. SETTING LEFT AND RIGHT MARGINS

1. Place cursor at designated location for margin change.

   NOTE: Text after this point will be affected by the margin change.
2. Press **[Shift + F8]** (Format Menu)
3. Select **[L]** (Line)
4. Select **[M]** (Margin)

   NOTE: Current margins are displayed.
5. Type left margin (Option)
6. Enter
7. Type right margin (Option)
8. Enter
9. Press **[F7]** (return to document)

C. SETTING TOP AND BOTTOM MARGINS

1. Place cursor at top of page
2. Press **[Shift + F8]** (Format Menu)
3. Select **[P]** (Page)
4. Select **[M]** (Margins)
5. Type top margin (Option)
6. Enter

7. Type bottom margin (Option)
8. Enter
9. Press **[F7]** (return to document)

D. TURNING HYPHENATION ON

1. Place cursor where hyphenation is to begin.
2. Press **[Shift + F7]** (Format Menu)
3. Select **[L]** (Line)
4. Select **[Y]** (Hyphenation)
5. Select the hyphenation setting:
   a) Select **[M]** (Manual)
      or
   b) Select **[A]** (Auto)
6. Press **[F7]** (return of document)
   Note: When a word needs to be hyphenated, a beep will sound and the message "Position hyphen; Press ESC" will appear at bottom of screen.
7. Press **Left** or **Right Arrow**
8. Press **Escape** (to hyphenate word)

IV. Define the Text

WordPerfect has special features to make text defining easy. By pressing a function key before and after you type (toggle key) your text will automatically be defined. The following function keys will boldface, underline, and center text.

COMMAND	FUNCTION KEY
Bold Text	**[F6]**
Underline Text	**[F8]**
Center Text	**[Shift + F6]** (not a toggle key)

*Block (highlight) text to be defined after it has been typed:

1. Place cursor on first character of text to be highlighted.
2. Press **[Alt + F4]** (Block On/Off)
   Note: A flashing "Block on" message appears at the bottom left-hand corner of the screen.
3. Highlight text to be defined
4. Use one of the commands listed above for the print definement wanted.

*Using the Stafford Student Loan Letter do the following defining exercises:

A. **Boldface** Text:

1. Place the cursor at the beginning of the word "happy".
2. **[Alt + F4]** (Block On/Off)
3. Highlight text to be boldfaced
4. **[F6]** (Bold)

B. <u>Underline</u> Text:

1. Place the cursor at the beginning of "directly to your school as follows:"
2. **[Alt + F4]** (Block On/Off)
3. Highlight text to be underlined
4. **[F8]** (Underline)

C. Center Text:

1. Place the cursor at the beginning of the name and address.
2. **[Aft + F4]** (Block On/Off)
3. Highlight text to be centered
4. **[Shift + F6]** (Center Text)

V. Spell check a document

The spell-check feature will allow you to check the spelling of a single word, a page, or an entire document.

1. Press **[Ctrl + F2]** (begin speller)
2. Select one of the following from the Check Menu:
   a) Select **[W]** (Word)
      -Check the word on which cursor is blinking.
   b) Select **[P]** (Page)
      -Check the page on which the cursor is blinking.
   c) Select **[D]** (Document)
      -Check the entire document.
   d) Select **[N]** (New Supplementary Dictionary)
      -Use a new supplementary dictionary
   e) Select **[L]** (Look up)
      -Looks up a word in the main dictionary that matches a pattern.
   f) Select **[C]** (count)
      Counts the words in the document of the screen.

NOTE: Press **[F1]** (Cancel key) at any time.

VI. Use the Thesaurus

1. Place cursor on word to be looked up.
2. Press **[Alt + F1]** (Thesaurus)

   NOTE: Press the letter preceding a choice to look up synonyms for that word.
3. Select one of the following from the Thesaurus menu:

   a) Select **[1]** (Replace Word)

      1) Press arrow keys to move letters A,B,C...) to column where word choice is located.

      2) Type the letter preceding the selected word.

   b) Select **[2]** (View Document).

      1) Move through document.

      2) Press **[F7]** (return to document).

   c) Select **[3]** (Look up Word).

      1) Type the word to be looked up.

      2) Enter.

   d) Select **[4]** (Clear Column).
4. Press **[F7]** (Exit and return to the document).

VII. Print a Document

To print the document presently on the screen.

1. Press **[Shift + F7]** (Print menu).
2. Select **[F]** (Full Document).

   or

   Select **[P]** (Page).

NOTE: VIEW DOCUMENT ON SCREEN PRIOR TO PRINTING.

1. Press **[Shift + F7]** (Print menu).
2. Select **[v]** (View Document)
3. Select from one of the following view.

   options:

   a) Select **[1]** (100%).

   b) Select **[2]** (200%).

   c) Select [3] (Full page).

   d) Select **[4]** (Facing pages).

   NOTE: Facing pages displays the facing even and odd page.
4. Press **[F7]** (return to document).

VIII. Save a Document

There are two ways to save your document:

1. Save and continue working.
2 Save and exit the program.

A. SAVE AND CONTINUE WORKING

Press **[F10]** name and save the document. This option will allow you to continue working after the document is saved.

1. Press **[F10]** (Save and continue working).

   NOTE: Use a maximum of (8)characters, with a maximum extension of (3) characters to name a file.

3. A message on the screen will ask:

   Document to be saved: Stafford.691

   NOTE: If already saved, press **[Y]** to replace and then Press **Return.**

B. Save and Exit

1. Press **[F7]** (Save and Exit).
2. Save Document? **[Y/N]**.
3. Press **[Y]** and **[Y]** again to Exit.
4. Press **[N]** to return to a blank screen.

APPENDIX C

INTRODUCTION TO SPREADSHEETS

USING LOTUS 1-2-3

LEARNING OBJECTIVES:

At the completion of this assignment, you will be able to:

I. Identify a Spreadsheet

II. Use Start-up loading procedure

III. Explore a Spreadsheet

IV. Edit and make corrections

V. Align labels

VI. Enter Formulas and Copy

VII. Save a Worksheet

VIII. Print a Worksheet

IX. Quit/Exit 1-2-3

X. Create an Income Statement

I. Identify a Spreadsheet

Lotus 1-2-3 is called an electronic spreadsheet. What exactly is an electronic spreadsheet? Imagine a large sheet of accounting paper with many columns and rows. In the business world this is often referred to as a worksheet or spreadsheet. Spreadsheets are commonly used to gather financial data and to accumulate the results. Electronic worksheets are computer programs that are similar to paper spreadsheets in structure and format. One big difference with electronic spreadsheets is that the columns and rows appear on a computer rather than on paper. Another difference is that spreadsheet calculations can be performed by the computer instead of manually.

II. Start-up procedure/loading

Generally, to begin Lotus 1-2-3, at the DOS prompt type: 123 (the complete filename is (123.EXE). The way to load Lotus 1-2-3 may differ from computer system to computer system. There are loading procedures for a hard-drive system and a two-floppy- disk-drive computer system. Become familiar with and master the appropriate loading procedure for your computer system.

Once you have loaded (accessed) Lotus 1-2-3, you see the first Lotus screen. The heading will indicate that this is the Lotus Access System. The Mode Indicator in the upper right corner of the screen has the word Menu, and on the line below the heading you will see the following:

1-2-3 File-Manager Disk-Manager PrintGraph Translate Exit

Each of these represents an activity category that can be accessed by the Lotus program. The main one you will be concerned with is 1-2-3. Press **ENTER** and 1-2-3 will load. Press any key to continue when asked and the program will be ready to run.

III. Explore the Spreadsheet

Key(s)	Description
1. **[Arrow keys]**	Moves the cell pointer one cell at a time in the direction of the arrow.
2. **[PgUp]/PgDn]**	Moves the cell pointer 20 rows up and down, respectively.
3. **[Tab]** **[Ctrl+Right Arrow]**	Moves the cell pointer one window screen to the right.
4. **[Shift + Tab]** **[Ctrl+Left Arrow]**	Moves the cell pointer one window to the left.
5. **[Home]**	Moves the cell pointer to the upper left corner of the work-sheet, cell A1.
6. **[F5]**	GOTO Key. This function key will quickly move to the designated address. **Example:** **Move to cell T14:** **1. Press [F5]** **2. Type: T14** **3. Press** Return

IV. Editing and Corrections

A. Strikeover correction

1. Place cursor in the cell to be edited
2. Retype the entry
3. ENTER

B. Editing an existing cell entry

1. Place cursor in cell to be edited
2. Press **[F2]** (Edit
3. Use edit keys to make corrections

Left and right	**[<-] [->]**
Five characters right	**[Tab]**
Move five characters left	**[Shift+Tab]**
Beginning of edit line	**[Home]**
End of edit line	**[End]**
Delete text left of cursor	**[Backspace]**
Delete text under cursoer	**[Del]**

4. ENTER

V. Label Alignment

The label in a single cell can be realigned by putting a code character in front of the label.

Code Character	Example	Result
Quotation Mark	"JAN	Right-Aligned
Apostrophe	'JAN	Left-Aligned
Caret	^JAN	Centered
Backslash	\JAN	Repeating

One command will affect the alignment of all labels on the worksheet:

Worksheet Global Label Right	/WGLR
Worksheet Global Label Left	/WGLL
Worksheet Global Label Center	/WGLC

VI. Enter Formulas and Copy

A. Using arithmetic symbols

1. Place cursor in the cell where answer should appear.
2. Type + (Plus) to put Louts into VALUE MODE
3. Move cursor to the first cell to be calculated
4. Type desired arithmetic symbol:

   + (addition) * (multiplication)

   - (subtraction) / (division)

5. Move cursoer to the next cell to be calculated Repeat steps 4 & 5 if further calculations are necessary.
6. ENTER

B. Copying

1. Move cursor to first cell to be copied.
2. Type / (Menu).
3. Type **C** (Copy).
4. Highlight COPY FROM:
5. ENTER.
6. Move cursor to first cell to be COPIED TO:
7. Type . (Period) to lock in range.
8. Move cursoer to last cell to be COPIED TO:
9. ENTER .

VII. Save a Worksheet

A. Storing/Saving - A new worksheet

1. Press **HOME**
2. Type / (Menu)
3. Type **F** (File)
4. Type **S** (Save)
5. Type a file name
6. ENTER

B. Re-Storing/R-Saving - Overwriting a Woksheet

1. Press **HOME**
2. Type / (Menu)
3. Type **F** (File)
4. Type **S** (Save)
5. ENTER
6. Type **R** (Replace)

VIII. Print a Worksheet

1. Move cursor to the first cell to be printed
2. Type / (Menu)
3. Type **P** (Print)
4. Type **p** (Printer)
5. Type **R** (Range)
6. Type . (Period) to lock in the range
7. Highlight range to be printed
8. ENTER
9. Type **A** (Align)
10. Type **G** (Go)
11. Type **Q** (Quit)

IX. QUIT/EXIT 1-2-3

1. Type / (Menu)
2. Type **Q** (Quit)
3. Type **Y** (Yes)

NOTE: TO GET HELP

1. Press **F1** (help)

X. CREATE A INCOME STATEMENT

1. Enter the labels listed below. The cells where you are to put the labels are shown on the left followed by a colon:

   A2: SALES

   A4: SELLING EXPENSES

   A5: GENERAL EXPENSES

   A6: TOTAL EXPENSES

   A8: NET INCOME

2. Enter values into the statement. Remember to press ENTER after each entry.

   C4: 100

   C6: 20

   C7: 19

   C9: +C6+C57

   C10: +C4-C9

3. Expand the income statement developed from one month to six month. Type the months January through June in cells C1 to H1. Right align the labels by using Worksheet Global Label Right **/WGLR.**

C1: JAN

D1: FEB

E1: MAR

F1: APR

G1: MAY

H1: JUN

4. The copy command will take the contents of one cell and copy it into another. It will also copy a range of cells (source range) into another range of cells (target range). This is an extremely important and powerful command.

Step 1: Move cursor to cell C4

Step 2: Move cursor to cell C10

Step 3: ENTER

Step 4: Move cursor to Cell D

Step 5: Type a . (period to anchor)

Step 6: Move cursor to Cell H10

5. Save the worksheet

   Step 1: **/S**

   Step 2: Name the worksheet **SAMPLE**

   Step 3: Press Enter

6. To retrieve the worksheet

   Step 1: **/R**

   Step 2: Type **SAMPLE**

To print the worksheet use the, instructions under the heading VIII. Print A Worksheet.

APPENDIX D

INTRODUCTION TO DATABASE MANAGEMENT

USING DBASE III PLUS

LEARNING OBJECTIVES:

At the completion of this assignment you will be able to:

I. Identify a database

II. Use start-up loading procedure

III. Create, Save and Exit a database

IV. Add records to a database

V. Open a created database

VI. Find and Edit Records

VII. Sort a database

VIII. Print a database

IX. Create a membership list

I. Identify a database

A database is an organized collection of items which are similar in some way. The telephone book, which lists names, addresses, and phone numbers arranged in the same order, is a database. Your checkbook lists the check number, the amount of the check, and who it is made out to, again in order. An address book and a catalog are also an organized collection of similar items, arranged in an systematic manner. Other databases you may be familiar with are a record of car expenses, a membership roster (a membership list will be created as an example), and an inventory of records or tapes.

II. Use start-up loading procedure

Generally, to begin dBASE III Plus, at the DOS prompt type: DB (the complete filename is DB.EXE). The way to load dBASE may differ from computer system to computer system. There are loading procedures for a hard-drive system and a two-floppy-disk-drive computer system. Become familiar with and master the appropriate loading procedure for your computer system. Once you have loaded (accessed) dBASE you will see the Assist Menu; if it does not appearing on the screen, press **[F2]**.

III. Create, Save and Exit a Database

Open a database formation to create a new database.

In Assist Menu

1. Press **[C]** (Create)
2. Database File
3. Highlight drive
4. Type filename

Create a database by defining its structure

1. For each field of the database

   Type file name

   NOTE: A field name

   - May have up to 10 characters

   - Must begin with a letter

   - May include letters, numbers, or (_) underline symbol.

2. Select field type

   Numeric **C**haracter **L**ogical

   Date **M**emo

   OR **SPACEBAR** to display field type

3. **RETURN**

For character and numeric fields only:

Type field width

NOTE: Field width may vary by type of field:

Character: 1-254 Numeric 1-19 Date=8 (fixed)

Logical=1 (fixed) Memo=10 (contents not limited to width)

For numeric field only:

Type number of decimal places

After final field:

1. **[Ctrl+End]**
2. **RETURN** (to confirm)
3. **[Y]** (Yes to input records)

   OR

   [N] (No to leave database empty)

Exit a database structure

1. [Ctrl+End] (to save)

   or

   [Esc] (to abandon)

IV. Add records to a database

1. **[Y]** at "input data records now"

   OR

   In Assist Menu

   [U] (Update

   Append

V. Open a created database

1. **[S]** (setup)
   2. Database
   3. Highlight drive
   4. Highlight filename
   5. **[N]** (no file, not indexed)

V. Find and Edit Records

Find Records

1. **[P]** (position)
2. Locate
3. Build a search condition

Edit Records

1. **[U]** (update)

   Edit

VI. Sort a database

Sorting in ascending order

1. **[O]** (organize)

   Sort
2. Highlight fieldname
3. -> (to exit fieldlist)
4. Highlight drive and type name for new file

VIII. Print a database

Print all records

1. **[R]** (retrieve)

   List

   Execute the commands

2. **[Y]** (yes to print)

Print all records, selected fields only

1. **[R]** (retrieve)

   List

   Construct a field list

2. Highlight fieldname

Optional: FOR EACH ADDITIONAL FIELD

3. Highlight field name

4. -> (to exit field list)

   Execute the command

5. **[Y]** (yes to print)

Print Selected Records

1. **[R]** (retrieve)

   List

   Build a search condition

2. Highlight fieldname

3. Highlight operator

4. Type a value

   No more conditions

   Execute file command

5. **[Y]** (yes to print)

IX. Create a Membership List

Create and Save a Database

DIRECTIONS:

1. Using the information illustrated below, create a database file; name it **MEMBER**
2. Save the database
3. Print the database

DATABASE FILE NAME: MEMBER

PURPOSE OF DATABASE: To organize a membership list

DATA PREPARED: Today's date

INFORMATION	FIELD NAME	TYPE *	WIDTH	DEC
First Name	FIRST	(C,D,N,L,M)	8	
Last Name	LAST	C	10	
Street Address	ADDRESS	C	20	
CITY	CITY	C	7	
Phone Number	PHONE	C	8	

*C=Character, N=Numeric, D=Date, L=Logical, M=Memo

Open a file: Enter Records

DIRECTIONS:

1. Open the MEMBER file
2. Using the membership list illustrated below, enter the information for each person into the database.

   NOTE: Do not correct errors at this time, This will be done in adding and editing records.

3. Save the file
4. Print the file

HUG Membership List

California Members

NAME	ADDRESS	CITY	PHONE
Leanne Barnes	808 Summer St.	Fortuna	555-4987
Miles Brown	154 Newburg Rd.	Fortuna	555-4837
Stuart Griffith	1551 Dean St.	Scotia	555-3010
Michael Moon	1700 Pine St.	Scotia	555-9275
Trina Smith	3954 Wood Blvd.	Fortuna	555-3954
Sheila Smith	417 Pacific Ct.	Fortuna	555-7283
Bette Walker	1584 F. St.	Eureka	555-5192
Carl Castillo	1956 Park Ave.	Eureka	555-5192
John Davis	P.O Box 2333	Eureka	555-8129
Amy Dixon	2493 Albee St.	Eureka	555-8917

Adding New Records: Editing Records

DIRECTIONS:

1. Open the **MEMBER** file

2. From the information below, add the new members to the database.

	FIRST	LAST	ADDRESS	CITY	PHONE
11	Gail	Kendall	15 Imperial Way	Eureka	555-2038
12	Janice	Dagger	2740 Ocean Ave.	Eureka	555-1823
13	Amy	Paoli	1442 Summer St.	Fortuna	555-2928
14	Roy	Porter	760 School Ave.	Eureka	555-2811
15	Pamela	Start	959 Myrtle Ave.	Eureka	555-2834
16	Cleo	Chan	637 Driver Rd.	Arcata	555-8275
17	Mark	Smith	682 Mill St.	Arcata	555-2949
18	James	Kramer	511 Walnut Dr.	Arcata	555-9112
19	Edwin	Shaw	2349 Donna Dr.	Arcata	555-1944
20	David	Wagner	3387 G. St.	Arcata	555-5193

NOTE: Check the records for accuracy; in addition to the editing on the next page, correct all errors made previously.

3. Locate the record for Michael Moon.

   Make the following changes on his record:

   * His new address is 32 Oak St.

   * His new phone number is 325-8750

4. Locate the record for Bette Walker.

   Make the following changes on her record:

   * Her new name is Bette Walker-Sim.

   * Her new address is 1745 River St.
     located in Eureka.

   * Her new phone number is 987-7623

5. Locate the record for Leanne Barnes.

   Make the following changes on her record:

   * Her new name is Leanne Davis

   * Her new address is 206 Apple Rd.
     located in Scotia

   * Her new phone number is 496-8520

6. Save the changes

7. Print the file